DOCUMENT RESUME

ED 170 635 CG 013 426

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TITLE Life Satisfaction in Adulthood: A Sequential Analysis.
PUB DATE Aug 78
NOTE 18p.; Paper presented at the Annual Convention of the American Psychological Association (Toronto, Ontario, Canada, August, 1978)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; *Age Differences; *Generation Gap; Psychological Studies; *Quality of Life; Racial Attitudes; Sequential Approach; *Sociocultural Patterns; *Time Perspective

ABSTRACT

The relative impact of ontogenetic and sociocultural change on life satisfaction over the adult age-span (ages 30-73) is investigated. Independent random-sampling data are examined for changes occurring over a four-year period, with tests administered in 1973 and 1977. The results of an age x time measurement x race time-sequential analysis and a cohort x time of measurement x race cross-sequential analysis reveal that generational differences can account for a greater proportion of the variability in life satisfaction than can age differences. Racial differences and time of measurement differences in life satisfaction also are examined. The implications of the findings for future research in the area are discussed. (Author)

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ED170635

Life Satisfaction in Adulthood:

A Sequential Analysis

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A paper presented at the annual meeting
of the American Psychological Association
Toronto, Ontario, Canada, August 1978

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Life Satisfaction in Adulthood:
A Sequential Analysis

Over the past two decades, a great deal of research has been generated dealing with the topic of life satisfaction, and especially the relationship between age and life satisfaction. Despite the many studies which have been done in this area, the nature of the above-mentioned relationship has yet to be clearly defined. While some studies find that life satisfaction increases with age (Bortner & Hultsch, 1970; Cantril, 1965), other find decreases in life satisfaction with age (Bradburn, 1969; Edwards & Klemmack, 1973; Spreitzer & Snyder, 1974), and yet other studies find no systematic relationship between the two (Neugarten, Havighurst & Tobin, 1961; Sauer, 1977). In one of the few longitudinal studies done in the area, Palmore and Kivett (1977) found no changes in life satisfaction with age.

There are many explanations which might account for this apparent lack of agreement among researchers in the area. In his recent review of the literature, Larson (1978) notes the possibility that some of this confusion may be due to differences between birth cohorts.

It has been repeatedly asserted that traditional cross-sectional studies, assessing different samples at one point in time, and traditional longitudinal studies, examining ontogenetic changes within a single cohort (generation), cannot be used to separate generational change from true age-related change (Baltes, 1968; Schaie, 1965, 1970; Schaie, LaBouvie & Buech, 1973;

Schaie & Parham, 1976). It is therefore not possible to determine from the existing research the extent to which life satisfaction is affected by socio-cultural changes.

The sequential strategies, developed and explicated by Schaie and his associates, involve the selection of several cross-sectional samples over two or more different times of measurement (Schaie, 1965). Each of the three strategies (cross-, time-, and cohort-sequential) allows for the investigation of two of the factors of interest (age, cohort and time of measurement), confounded by the effects of the third.

The cross-sequential and time-sequential models were employed in this study. Assuming that cohort-related differences account for the major proportion of the variance, the cross-sequential model may be used; alternately assuming that age-related differences account for the majority of the variability, the time-sequential model may be employed. Comparison of the results from these two analyses can yield a clearer picture of the effects of generational or ontogenetic changes on life satisfaction.

Schaie (1977) suggests carrying subject sex as a main effect in each of the analyses performed. Previous research in this area, however, has failed to find significant sex differences in life satisfaction (Larson, 1978), and preliminary analyses of the present data also did not reveal any significant sex differences. Accordingly, the present study substitutes race for sex in both of the analyses, since the results with regard to this variable seem to be more equivocal.

Finally, the literature in this area reveals positive relationships between several different variables and life satisfaction. The present study thus employs an analysis of covariance technique, with self-reporte health and income, which are the two variables found most consistently to be related to life satisfaction for both whites (Edwards & Klemmack, 1973) and blacks (Jackson, Bacon & Peterson, 1977), as the covariates.

Method

The data used in the present study are drawn from the National Data Program for the Social Sciences conducted by the National Opinion Research Center (NORC) at the University of Chicago. Every spring, NORC conducts interviews with a national probability sample of the U.S. population, representing a cross-section of Americans, 18 years and older, living in non-institutional settings throughout the country. In these hour-long interviews, the respondents are asked a wide variety of questions concerning general information, and social and political attitudes, opinions and behaviors.

All of the data reported in this study were taken from NORC questions asked of the 1973 (N = 1,504) and 1977 (N = 1,530) samples. An index of life satisfaction was created based on the respondents' answers to questions concerning satisfaction with seven different areas: health, family, friends, place of residence (city, non-work activities (hobbies), work (job), and financial situation. Responses to the first five variables were coded into

seven response categories, while four categories were provided for job satisfaction, and three for financial situation. Responses to these latter two questions were converted to 7-point scales so that in all cases, a score of "7" indicates the most positive response while a score of "1" represents the least positive. A subject's overall rating of life satisfaction was defined as the mean rating given for all seven individual questions. Scores on the index could thus range from 1 to 7, with higher scores indicating greater satisfaction.

The NORC interviews obtained information concerning the respondents' total income for the year prior to the interview (in this study, 1972 and 1976, respectively). Responses were coded into 12 income levels, ranging from "under $1,000" to "$25,000 or over".

Self-reported health was obtained from responses to another interview question, which asked subjects to rate their health as either excellent, good, fair or poor.

The present study restricted itself to persons born between 1904 and 1943 (ages 30 to 73). This reduced the total sample to 1,935. An additional 148 subjects, for whom complete information was not available, were dropped from the analysis. The resulting sample consisted of a total of 1,787 individuals, 922 sampled in 1973 and 865 interviewed in 1977. The total consisted of 1,587 whites and 200 blacks.

Design

The present data permit the alternative application of two

separate designs: the cross-sequential and time-sequential strategies. Assuming that cohort-related differences account for the major proportion of variance, the data may be organized into a cross-sequential design (cohort x time of measurement x race). Alternately, assuming that age-related (ontogenetic) differences account for the major proportion of variance, the data may be grouped according to age level and an age x time of measurement x race analysis may be used.

The sample subjects were divided into 10 cohorts, each of which consisted of a four-year birth interval. Thus, the youngest cohort (N = 221) consisted of individuals born between 1940 and 1943, while the oldest cohort (N = 111) consisted of individuals born between 1904 and 1907. With 10 cohorts and 10 age groupings, the cross-sequential analysis yielded a 10 (cohort) x 2 (time) x 2 (race) ANOVA design, while the time-sequential analysis yielded a 10 (age) x 2 (time) x 2 (race) ANOVA design.

Results

Scores on the life satisfaction index for the present sample ranged from 2.14 to 7.00, with a mean of 5.39 and SD of .94. Correlations between responses to individual questions and the overall index score ranged from +.63 (satisfaction with non-work activities) to +.53 (job satisfaction). Intercorrelations between the responses to the seven questions ranged from +.44 (between satisfaction with family and friends) to +.12 (between satisfaction with friends and financial situation). All correlation coefficients were significant at beyond the .001 level.

The results of the 10 (cohort) x 2 (time of measurement) x 2 (race) cross-sequential analysis revealed a significant main effect for cohort, F (1, 1754) = 10.23, $p < .001$ (the results of the analyses are provided in Tables 1 and 2). A post-hoc test of the means (N-k) revealed that cohorts 2 and 3 (birth years 1932-1939) were lowest on life satisfaction and differed significantly from cohorts 7 and 8 (birth years 1912-1919), who showed the highest life satisfaction scores. Notably, the time of measurement effect was not significant. According to Schaie's (1965) General Developmental Model, if differences are due to generational effects alone, then only the main effect for cohort will be significant (Schaie, 1965; Schaie & Strother, 1968). Thus, we could conclude that cohort rather than age may account for more of the variance in life satisfaction. However, the next step in gaining evidence for this conclusion would be to analyze the data using the time-sequential design. In this design, we can attribute differences observed to the effects of cohort differences only if both the main effect for time and for age are significant (Schaie, 1965; Schaie & Strother, 1968). A significant time effect observed in the time-sequential analysis but not present in the cross-sequential analysis is also proof of cohort differences (Schaie, 1977).

The results of the time-sequential analysis revealed a significant main effect for age, $F(9, 1733) = 12.46$, $p < .001$, and a significant effect for time of measurement, $F(1, 1733) = 5.26$, $p < .05$. No significant time x cohort or time x age interactions were found in either analysis. Thus, the comparison of the results of these two analyses lends strong support to the

conclusion that generational differences rather than age differences account for the majority of the variance in life satisfaction.

In addition to these effects of primary interest, significant racial differences in life satisfaction were found in both analyses, $F(1,1754) = 25.47$, $p < .001$ for the cross-sequential analysis, and $F(1,1733) = 23.79$, $p < .001$ for the time-sequential analysis. In both cases, blacks indicated significantly less satisfaction ($M = 4.85$) than whites ($M = 5.46$). Significant race x time of measurement interactions were also obtained in both analyses, $F(1,1754) = 4.92$, $p < .05$ for the cross-sequential, and $F(1,1733) = 4.02$, $p < .05$ for the time-sequential analysis. While whites exhibited virtually no change in satisfaction between the two measurement times (M for 1973 = 5.46, M for 1977 = 5.45), blacks reported a significantly greater degree of satisfaction in 1977 ($M = 5.01$) than they did in 1973 ($M = 4.74$).

Discussion

The results of the present study lend strong support to the notion that generational, rather than age differences account for a major proportion of the variability in life satisfaction over the adult life span. Specifically, two of the younger cohorts (birth years 1932-1939) reported significantly lower levels of life satisfaction than two of the older cohorts (birth years 1912-1919). One possible explanation for these results relates to the nature of the tremendous changes which have taken place in our society since the early 1900s. Individuals in the older cohorts have obviously witnessed phenomenal changes in the lifestyle of this

country, changes which, perhaps, make them now view their own lives as more positive than those who have not witnessed as much change. Consider, for example, the fact that most of the subjects born in our earlier cohorts would probably have vivid memories of the Depression, while this could be said of very few of the subjects in the later-born cohorts. Indeed, the same observation may hold true for World War II as well. Thus, it may be the case that current satisfaction with life depends to some extent on what one compares his or her current status with. Another explanation for the greater satisfaction of the older cohorts is offered by Campbell, Converse, and Rodgers (1976). These authors note that the decline in satisfaction produced by the cohort of people currently at younger ages may be the result of this younger group being more critical and discontented than previous ones. It is suggested that older cohorts grew up in a time where acceptance of the status quo was a more natural pattern (1976, p. 156). Successive cohorts have been more willing to express their dissatisfaction when it was perceived.

Regardless of the explanation of the cohort differences observed, the present study's findings do suggest that previous contradictory results with regard to the relationship between life satisfaction and age may be due to differences between the cohort groupings included in the different samples of past studies. Our results also show that socio-cultural changes over the time span measured have had different impacts on blacks and whites in our society. Although levels of satisfaction reported by whites were higher than those reported by blacks at both times of measurement,

satisfaction of black subjects has increased significantly over the time span under study while satisfaction for whites has remained stable. This finding suggests the importance of the time of measurement in studies of racial differences in life satisfaction.

While the present study shows support for cohort differences in life satisfaction, the preliminary nature of these results is suggested by several considerations. First, it should be noted that two different sampling techniques were used by NORC to obtain the data presented here. The 1977 data are based on a full probability sample, while the 1973 data are based on a modified probability sample (with quota sampling at the block level). Both samples do, however, represent the same sampling universe (National Opinion Research Center, Note 1). The additional problem of the nonequivalence of the response categories of the index components has already been noted.

Lastly, it should be noted that the sequential analyses, as carried out in the present study, have been the subject of some controversy over the past several years. Specifically, various investigators have, at one point or another, criticized the General Developmental Model for: the superfluousness of the time of measurement concept (Baltes, 1968), the identification of the age, time of measurement and cohort components with the effects of maturation, genetic and environmental effects (Buss, 1973), the spuriousness of significant cohort effects resulting from the measurement of cohorts ranging over a longer time span than the measurement of time effects (Botwinick, 1977; Botwinick & Arenberg, 1976), the quasi-experimental nature of the designs (Horn, 1976; Horn & Donaldson, 1976), and the "inextricable confounding" of age

and cohort effects (Horn & Donaldson, 1977). Most of these criticisms have been addressed by subsequent writings in the area (Baltes & Schaie, 1976; Labouvie, 1975; Schaie & Baltes, 1975, 1977; Schaie & Parham, 1977). In light of this continuing controversy, however, the results of the present study, while certainly presenting strong support for the lack of age differences in life satisfaction, cannot be considered conclusive.

Additional evidence for the claim that age differences in life satisfaction do not exist would be produced by the addition of a third measurement point which would permit a cohort-sequential analysis of the data, with main effects for both age and cohort. Such an analysis is currently underway, although the results are not available at this time.

Reference Notes

1. National Opinion Research Center. Codebook for the Spring general social survey. University of Chicago, 1973, 1975, 1977.

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Table 1

Summary of the Cross-Sequential

Analysis of Covariance

Source	df	F
Cohort (A)	9	10.23*
Race (B)	1	25.47*
Time (C)	1	.83
A x B	9	.49
A x C	9	.48
B x C	1	4.92**
Income	1	90.85*
Health	1	231.40*
Error	1,754	-

*p<.001
**p<.05

Table 2

Summary of the Time-Sequential

Analysis of Covariance

Source	df	F
Age (A)	9	12.46*
Race (B)	1	23.79*
Time (C)	1	5.26**
A x B	9	1.35
A x C	9	.43
B x C	1	4.02**
Income	1	81.10*
Health	1	230.80*
Error	1,733	-

*p<.001
**p<.05